

## **APPENDIX L**

### **Monthly Progress Report Example**

September 13, 2012

Mr. Kevin Snyder  
Project Manager, West Van Buren Area WQARF Site  
Remedial Projects Unit  
Arizona Department of Environmental Quality  
1011 West Washington Street  
Phoenix, AZ 85007

Re: August 2012 Monthly Progress Report - RID-95 Wellhead Pilot Treatment Systems

Dear Mr. Snyder:

This August 2012 Monthly Progress Report for the RID-95 Wellhead Pilot Treatment Systems is provided for your review. This Monthly Progress Report, consistent with Section 8 of the *RID-95 Wellhead Pilot Treatment System Proposal*, dated August 18, 2011, provides information regarding wellhead treatment systems currently operating at RID-95, RID-89, RID-92 and RID-114.

This Monthly Progress Report includes:

- Narrative summary of operational status including malfunctions, if any, and the actions taken to correct the malfunction.
- Operational data including: hours/percentage of operating time during the reporting period, volume of groundwater treated, approximate mass of target contaminants of concern (COCs) removed, and cumulative mass of target COCs removed since system start-up.
- Tabular summary of water quality samples collected and analytical results.
- Copies of final laboratory reports.

Please contact me by phone at 602-430-2785 or by email at [andrew.machugh@syn-env.com](mailto:andrew.machugh@syn-env.com), should you have any questions or comments regarding this report.

Best Regards,

SYNERGY Environmental, LLC

Andrew MacHugh, PE

cc: Donovan Neese, Roosevelt Irrigation District  
David Kimball, Gallagher & Kennedy



## **Summary of Operational Status**

### **RID-95 Pilot Wellhead Treatment System**

The RID-95 Wellhead Treatment System (WTS) operated continuously during the reporting period except when the system was changed to bypass mode (intermittently for approximately 1 hour) in an effort to balance flow rates between the treatment skids. When operating in treatment mode, the WTS processed flow from the well at approximately 1,600 gallons per minute (gpm). Additional operational data and estimated mass of target COCs removed are provided in **Table 1**. A summary of water quality data is provided in **Table 2**.

### **RID-89 Wellhead Treatment System**

The RID-89 WTS operated continuously during the reporting period except for approximately 6 hours due to a power surge/outage at the site that caused the system to automatically shut down. When operating, the WTS processed flow from the well at approximately 2,910 gpm. Additional operational data and estimated mass of target COCs removed are provided in **Table 1**. A summary of water quality data is provided in **Table 3**.

### **RID-92 Wellhead Treatment System**

The RID-92 WTS operated only about 17% of the time during the month because the system was shut down to allow for well investigation activities. When operating, the WTS processed flow from the well at approximately 1,230 gpm. Additional operational data and estimated mass of target COCs removed are provided in **Table 1**. A summary of water quality data is provided in **Table 4**.

### **RID-114 Wellhead Treatment System**

RID-114 WTS operated continuously during the reporting period except for approximately 1 hour for routine maintenance activities. When operating, the WTS processed flow from the well at approximately 2,380 gpm. Additional operational data and estimated mass of target COCs removed are provided in **Table 1**. A summary of water quality data is provided in **Table 5**.

**TABLE 1. RID WELLHEAD TREATMENT SYSTEMS OPERATIONAL STATUS**

West Van Buren Area WQARF Registry Site

Reporting Period: **August 2012**

WELLHEAD TREATMENT SYSTEMS DATA					
<b>RID-95 Pilot</b>	Volume of GW Treated:	218	acre-feet	Estimated Mass of Target COCs Removed:	43 pounds
	Volume of GW Treated, Since Start-up:	1503	acre-feet	Mass of Target COCs Removed, Since Start-up:	262 pounds
	Operational Hours:	743	<b>99.9%</b>		
<b>RID-89</b>	Volume of GW Treated:	397	acre-feet	Estimated Mass of Target COCs Removed:	44 pounds
	Volume of GW Treated, Since Start-up:	1296	acre-feet	Mass of Target COCs Removed, Since Start-up:	144 pounds
	Operational Hours:	739	<b>99.3%</b>		
<b>RID-92</b>	Volume of GW Treated:	29	acre-feet	Estimated Mass of Target COCs Removed:	7 pounds
	Volume of GW Treated, Since Start-up:	408	acre-feet	Mass of Target COCs Removed, Since Start-up:	96 pounds
	Operational Hours:	126	<b>16.9%</b>		
<b>RID-114</b>	Volume of GW Treated:	326	acre-feet	Estimated Mass of Target COCs Removed:	44 pounds
	Volume of GW Treated, Since Start-up:	992	acre-feet	Mass of Target COCs Removed, Since Start-up:	135 pounds
	Operational Hours:	743	<b>99.9%</b>		
<b>TOTALS (all sites):</b>	Volume of GW Treated:	<b>970</b>	acre-feet	Estimated Mass of Target COCs Removed:	<b>138</b> pounds
	Volume of GW Treated, Since Start-Up:	<b>4,198</b>	acre-feet	Mass of Target COCs Removed, Since Start-up:	<b>637</b> pounds

**MAINTENANCE REPORT**

RID-95 WTS operated in bypass mode for approximately 1 hour intermittently during the reporting period in an effort to balance skid flows.

RID-89 WTS was offline (or in bypass mode) for almost 6 hours due to a power surge/outage that caused the system to automatically shut down.

RID-92 WTS was offline for over 83% of the time during the month to allow for well investigation activities as requested by ADEQ.

RID-114 WTS was in bypass mode for approximately 1 hour during the month to allow for routine maintenance activities.

Alarms: None.

Actions: N/A.

- Attachments: 1) Table 2. RID-95 Pilot System Data Summary  
 2) Table 3. RID-89 Wellhead Treatment System Data Summary  
 3) Table 4. RID-92 Wellhead Treatment System Data Summary  
 4) Table 5. RID-114 Wellhead Treatment System Data Summary  
 5) Copies of Final Analytical Reports

**TABLE 2. RID-95 PILOT SYSTEM DATA SUMMARY**  
**WEST VAN BUREN AREA WQARF REGISTRY SITE**  
(results presented in micrograms per liter, µg/L)

					TARGET COCs					
SAMPLE LOCATION	SAMPLE ID*	DATE	LEAD VESSEL	SAMPLE TYPE	TCE	PCE	1,1-DCE	TCM	1,1-DCA	cis-1,2-DCE
EPA MAXIMUM CONTAMINANT LEVELS (MCL), as µg/L:					5	5	7	none	none	70
INFLUENT	95-Influent	8/7/12	--	Primary	61	4.1	8.2	1.3	4.4	11
	95-Influent	8/13/12	--	Primary	63	4.3	7.2	1.2	4.5	11
	95-Influent	8/20/12	--	Primary	62	4.4	7.6	1.2	4.3	11
	082012-01	8/20/12	--	Duplicate	62	4.4	7.8	1.2	4.5	11
	95-Influent	8/29/12	--	Primary	67	4.6	7.7	1.3	4.7	11
POINT OF COMPLIANCE	95-POC	8/7/12	--	Primary	<0.5	<0.5	1.1	1.1	5.1	2.6
	95-POC	8/13/12	--	Primary	<0.5	<0.5	1.4	1.4	6.4	3.6
	95-POC	8/20/12	--	Primary	<0.5	<0.5	2.4	1.4	5.9	5.5
	95-POC	8/29/12	--	Primary	<0.5	<0.5	3.6	1.6	6.1	7.7
TREATMENT SKID #1 (SOUTH, REACTIVATED CARBON)										
MID-SKID (EFFLUENT OF LEAD VESSEL)	95-MID-1	8/7/12	A	Primary	<0.5	<0.5	5.3	1.6	5.9	9.7
	95-MID-1	8/13/12	A	Primary	0.6	<0.5	6.4	1.6	5.8	11
	95-MID-1	8/20/12	A	Primary	0.9	<0.5	7.3	1.7	5.9	12
	95-MID-1	8/29/12	A	Primary	2.0	<0.5	8.5	1.5	5.3	12
TREATMENT SKID #2 (NORTH, REACTIVATED CARBON)										
MID-SKID (EFFLUENT OF LEAD VESSEL)	95-MID-2	8/7/12	A	Primary	5.4	<0.5	6.7	1.4	5.2	11
	95-MID-2	8/13/12	A	Primary	6.2	<0.5	8.1	1.7	5.8	12
	95-MID-2	8/20/12	A	Primary	12	<0.5	8.0	1.5	5.3	12
	95-MID-2	8/29/12	A	Primary	12	<0.5	8.8	1.4	5.3	13

**EXPLANATION:**

COC = Contaminant of Concern  
TCE = Trichloroethene  
PCE = Tetrachloroethene  
1,1-DCE = 1,1-Dichloroethene  
TCM = Chloroform  
1,1-DCA = 1,1-Dichloroethane  
cis-1,2-DCE = cis-1,2-Dichloroethene

\* All samples analyzed by Airtech Environmental Laboratories following EPA Test Method 8260B.  
<0.5 = Result is less than laboratory method reporting limit (MRL).  
All other volatile organic compounds (VOCs) are below the MRL/detection limit.

**TABLE 3. RID-89 WELLHEAD TREATMENT SYSTEM DATA SUMMARY**  
**WEST VAN BUREN AREA WQARF REGISTRY SITE**  
(results presented in micrograms per liter, µg/L)

					TARGET COCs					
SAMPLE LOCATION	SAMPLE ID*	DATE	LEAD VESSEL	SAMPLE TYPE	TCE	PCE	1,1-DCE	TCM	1,1-DCA	cis-1,2-DCE
EPA MAXIMUM CONTAMINANT LEVELS (MCL), as µg/L:					5	5	7	none	none	70
INFLUENT	89-Influent	8/7/12	--	Primary	31	9.0	2.1	2.9	0.7	2.8
	080712-01	8/7/12	--	Duplicate	30	8.7	2.2	3.1	0.7	3.0
	89-Influent	8/13/12	--	Primary	30	9.1	2.2	3.1	0.7	2.8
	89-Influent	8/20/12	--	Primary	30	9.2	2.2	3.1	0.7	2.7
	89-Influent	8/29/12	--	Primary	29	9.1	2.0	3.0	0.6	2.6
	082912-01	8/29/12	--	Duplicate	28	8.8	2.2	3.0	0.6	2.7
POINT OF COMPLIANCE	89-POC	8/7/12	--	Primary	<0.5	<0.5	<0.5	1.8	0.7	<0.5
	89-POC	8/13/12	--	Primary	<0.5	<0.5	<0.5	2.3	0.8	<0.5
	89-POC	8/20/12	--	Primary	<0.5	<0.5	<0.5	2.8	0.8	0.7
	89-POC	8/29/12	--	Primary	<0.5	<0.5	<0.5	3.2	0.9	1.1
TREATMENT SKID #1 (NORTH, REACTIVATED CARBON)										
MID-SKID (EFFLUENT OF LEAD VESSEL)	89-MID-1	8/7/12	A	Primary	1.7	<0.5	1.3	3.1	0.8	2.0
	89-MID-1	8/13/12	A	Primary	1.9	<0.5	1.4	3.4	0.8	2.3
	89-MID-1	8/20/12	A	Primary	3.1	<0.5	1.7	3.7	0.9	2.6
	89-MID-1	8/29/12	A	Primary	3.6	<0.5	1.9	3.7	0.9	2.7
TREATMENT SKID #2 (MIDDLE, REACTIVATED CARBON)										
MID-SKID (EFFLUENT OF LEAD VESSEL)	89-MID-2	8/7/12	A	Primary	3.1	<0.5	1.4	3.2	0.9	2.2
	89-MID-2	8/13/12	A	Primary	3.4	<0.5	1.8	3.5	0.9	2.6
	89-MID-2	8/20/12	A	Primary	4.7	<0.5	2.0	3.4	0.8	2.6
	89-MID-2	8/29/12	A	Primary	5.4	<0.5	2.1	3.7	0.9	3.2
TREATMENT SKID #3 (SOUTH, REACTIVATED CARBON)										
MID-SKID (EFFLUENT OF LEAD VESSEL)	89-MID-3	8/7/12	A	Primary	3.6	<0.5	1.5	3.2	0.9	2.3
	89-MID-3	8/13/12	A	Primary	4.1	<0.5	1.7	3.4	0.9	2.5
	89-MID-3	8/20/12	A	Primary	6.3	<0.5	1.9	3.7	0.9	3.0
	89-MID-3	8/29/12	A	Primary	6.7	<0.5	2.5	3.9	0.9	3.2

**EXPLANATION:**

COC = Contaminant of Concern  
TCE = Trichloroethene  
PCE = Tetrachloroethene  
1,1-DCE = 1,1-Dichloroethene  
TCM = Chloroform  
1,1-DCA = 1,1-Dichloroethane  
cis-1,2-DCE = cis-1,2-Dichloroethene

\* All samples analyzed by Airtech Environmental Laboratories following EPA Test Method 8260B.  
<0.5 = Result is less than laboratory method reporting limit (MRL).  
All other volatile organic compounds (VOCs) are below the MRL/detection limit.

**TABLE 4. RID-92 WELLHEAD TREATMENT SYSTEM DATA SUMMARY**  
**WEST VAN BUREN AREA WQARF REGISTRY SITE**

(results presented in micrograms per liter, µg/L)

					TARGET COCs					
SAMPLE LOCATION	SAMPLE ID*	DATE	LEAD VESSEL	SAMPLE TYPE	TCE	PCE	1,1-DCE	TCM	1,1-DCA	cis-1,2-DCE
EPA MAXIMUM CONTAMINANT LEVELS (MCL), as µg/L:					5	5	7	none	none	70
INFLUENT	92-Influent	8/7/12	--	Primary	NS	NS	NS	NS	NS	NS
	92-Influent	8/13/12	--	Primary	NS	NS	NS	NS	NS	NS
	92-Influent	8/20/12	--	Primary	NS	NS	NS	NS	NS	NS
	92-Influent	8/29/12	--	Primary	NS	NS	NS	NS	NS	NS
POINT OF COMPLIANCE	92-POC	8/7/12	--	Primary	NS	NS	NS	NS	NS	NS
	92-POC	8/13/12	--	Primary	NS	NS	NS	NS	NS	NS
	92-POC	8/20/12	--	Primary	NS	NS	NS	NS	NS	NS
	92-POC	8/29/12	--	Primary	NS	NS	NS	NS	NS	NS
TREATMENT SKID #1 (REACTIVATED CARBON)										
MID-SKID (EFFLUENT OF LEAD VESSEL)	92-MID-1	8/7/12	A	Primary	NS	NS	NS	NS	NS	NS
	92-MID-1	8/13/12	A	Primary	NS	NS	NS	NS	NS	NS
	92-MID-1	8/20/12	A	Primary	NS	NS	NS	NS	NS	NS
	92-MID-1	8/29/12	A	Primary	NS	NS	NS	NS	NS	NS

**EXPLANATION:**

COC = Contaminant of Concern

TCE = Trichloroethene

PCE = Tetrachloroethene

1,1-DCE = 1,1-Dichloroethene

TCM = Chloroform

1,1-DCA = 1,1-Dichloroethane

cis-1,2-DCE = cis-1,2-Dichloroethene

\* All samples analyzed by Airtech Environmental Laboratories following EPA Test Method 8260B.

<0.5 = Result is less than laboratory method reporting limit (MRL).

All other volatile organic compounds (VOCs) are below the MRL/detection limit.

NS = Not sampled as treatment system was in bypass mode for well investigation activities.

**TABLE 5. RID-114 WELLHEAD TREATMENT SYSTEM DATA SUMMARY**  
**WEST VAN BUREN AREA WQARF REGISTRY SITE**  
(results presented in micrograms per liter, µg/L)

					TARGET COCs					
SAMPLE LOCATION	SAMPLE ID*	DATE	LEAD VESSEL	SAMPLE TYPE	TCE	PCE	1,1-DCE	TCM	1,1-DCA	cis-1,2-DCE
EPA MAXIMUM CONTAMINANT LEVELS (MCL), as µg/L:					5	5	7	none	none	70
INFLUENT	114-Influent	8/7/12	--	Primary	45	2.8	2.7	1.9	2.0	7.7
	114-Influent	8/13/12	--	Primary	44	2.8	2.5	1.9	1.9	7.3
	081312-01	8/13/12	--	Duplicate	45	2.8	2.7	2.0	2.1	7.8
	114-Influent	8/20/12	--	Primary	45	3.0	2.7	2.0	2.0	7.7
	114-Influent	8/27/12	--	Primary	41	2.6	2.4	1.7	1.8	6.7
POINT OF COMPLIANCE	114-POC	8/7/12	--	Primary	<0.5	<0.5	<0.5	0.7	1.3	<0.5
	114-POC	8/13/12	--	Primary	<0.5	<0.5	<0.5	0.9	1.7	0.5
	114-POC	8/20/12	--	Primary	<0.5	<0.5	<0.5	1.3	2.3	1.0
	114-POC	8/27/12	--	Primary	<0.5	<0.5	<0.5	1.5	2.3	1.5
TREATMENT SKID #1 (NORTH, REACTIVATED CARBON)										
MID-SKID (EFFLUENT OF LEAD VESSEL)	114-MID-1	8/7/12	A	Primary	<0.5	<0.5	1.1	1.9	2.3	4.2
	114-MID-1	8/13/12	A	Primary	<0.5	<0.5	1.3	2.0	2.5	5.0
	114-MID-1	8/20/12	A	Primary	0.5	<0.5	1.6	2.4	2.7	6.2
	114-MID-1	8/29/12	A	Primary	0.9	<0.5	2.2	2.4	2.4	7.1
TREATMENT SKID #2 (MIDDLE, REACTIVATED CARBON)										
MID-SKID (EFFLUENT OF LEAD VESSEL)	114-MID-2	8/7/12	A	Primary	1.5	<0.5	1.7	2.2	2.5	6.1
	114-MID-2	8/13/12	A	Primary	2.2	<0.5	2.0	2.3	2.5	6.4
	114-MID-2	8/20/12	A	Primary	3.2	<0.5	2.5	2.4	2.7	7.8
	114-MID-2	8/29/12	A	Primary	3.8	<0.5	2.6	2.3	2.4	7.7
TREATMENT SKID #3 (SOUTH, REACTIVATED CARBON)										
25% BED SAMPLE	114-3A-25	8/7/12	A	Primary	31	0.9	2.9	2.1	2.0	8.7
	114-3A-25	8/13/12	A	Primary	34	0.9	2.9	2.0	2.1	8.5
	114-3A-25	8/20/12	A	Primary	38	1.2	3.1	2.5	2.1	8.4
	114-3A-25	8/29/12	A	Primary	37	1.2	2.8	2.0	2.0	8.0
50% BED SAMPLE	114-3A-50	8/7/12	A	Primary	8.4	<0.5	2.9	2.1	2.2	8.8
	114-3A-50	8/13/12	A	Primary	15	<0.5	3.2	2.2	2.2	9.8
	114-3A-50	8/20/12	A	Primary	18	<0.5	3.2	2.4	2.1	8.7
	114-3A-50	8/29/12	A	Primary	21	<0.5	3.3	2.2	2.1	9.2
75% BED SAMPLE	114-3A-75	8/7/12	A	Primary	<0.5	<0.5	2.0	2.3	2.6	7.5
	114-3A-75	8/13/12	A	Primary	<0.5	<0.5	2.6	2.3	2.5	8.5
	114-3A-75	8/20/12	A	Primary	1.3	<0.5	3.2	3.2	2.4	9.5
	114-3A-75	8/29/12	A	Primary	2.9	<0.5	3.7	2.5	2.4	10
MID-SKID (EFFLUENT OF LEAD VESSEL)	114-MID-3	8/7/12	A	Primary	<0.5	<0.5	1.2	2.2	2.6	4.9
	114-MID-3	8/13/12	A	Primary	<0.5	<0.5	1.5	2.3	2.4	5.9
	114-MID-3	8/20/12	A	Primary	0.8	<0.5	2.3	2.6	2.8	8.1
	114-MID-3	8/29/12	A	Primary	1.2	<0.5	2.1	2.5	2.6	8.4

**EXPLANATION:**

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TCM = Chloroform  
1,1-DCA = 1,1-Dichloroethane  
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